

DC  
BP

a data line to apply a data signal;  
a pixel electrode for driving a liquid crystal, the pixel electrode having an electric field induction window therein;  
a gate line crossed to the data line, to define a pixel region;  
a common auxiliary electrode formed to surround the pixel region; and  
a plurality of electric field distortion dielectric structures formed in different forms within neighboring pixels.

---

#### REMARKS

The Office Action of April 1, 2002 has been received and contents carefully reviewed. Reconsideration and reexamination of the application is respectfully requested.

Applicant respectfully thanks the Examiner for indicating the allowability of claims 4-6, 12-16, 18, and 37. Claims 4, 12-16, 18, and 37 have been amended to place these claims in independent form. Claims 1-16 and 18-37 are currently pending in this application.

The Examiner objected to the title of the invention. Applicant believes that the amended title, which was provided in the Amendment filed March 5, 2002, is clearly indicative of the invention. Applicant respectfully requests the withdrawal of this objection.

The Examiner rejected claim 30 under 35 U.S.C. § 112, second paragraph, as being indefinite as to the alignment characteristics of the at least two regions of the alignment film. Applicant respectfully traverses this rejection.

Applicant has previously discussed how claim 30 is supported by the recitation in claim 28 in the Amendment filed March 5, 2002. The Applicant directs the Examiner to at least figures 7A-11E and pages 16-19 of the specification of this application for further

understanding of claim 30. Therefore, dependent claim 30 is supported by the recitation in base claim 28 that the at least two regions have different alignment characteristics. Applicant respectfully submits that claim 30 and all of the pending claims comply with 35 USC § 112.

The Examiner rejected claims 1-3, 7-11, 17, and 19-36 under 35 U.S.C. § 103(a) as being unpatentable over Lien (U.S. Patent No. 5,907,380) in view of Ueda et al. (U.S. Patent No. 5,459,596). Applicant respectfully traverses this rejection.

Applicant submits that claims 1-3, 7-11, 17, and 19-36 are allowable over the cited references in that each of the independent claims 1 and 35 recites a combination of elements including, for example, a common auxiliary electrode to surround the pixel region; a pixel electrode; and a plurality of electric field distortion dielectric structures in different forms within neighboring pixels.

None of the cited references including Lien and Ueda et al., which are cited against all of the rejected claims, singly or in combination, teaches or suggests at least these features of the claimed invention.

In the multi-domain liquid crystal display device as recited by claims 1 and 35, the common auxiliary electrode is formed on the same layer as the gate lines to surround the pixel region. The dielectric structures are patterned in different forms within neighboring pixels on the common electrode, so that electric field distortion can be induced. Thereby, control of the alignment direction is facilitated and the viewing angle and multi-domain effect are improved.

On page 4 of the Office Action, the Examiner states, "*Lien does not explicitly disclose a common auxiliary electrode formed to surround the pixel region.*" The Examiner cites

Ueda et al. to cure the deficiencies of Lien. However, there is no motivation to combine these two references.

Lien employs a wall of transparent conductive material to control the tilt direction of the liquid crystal. Ueda et al. employs a shield electrode to reduce the parasitic capacitances between the pixel electrode and the scan line and between the pixel electrode and the signal line. One of ordinary skill in this art would not modify Lien by including the common electrode of Ueda et al. because such an arrangement would teach away from the disclosure and purpose of Lien, as discussed in column 1, lines 40-51 in the Background Art section of Lien.

Furthermore, the Examiner has not pointed out a particular finding as to the specific understanding or principle within the knowledge of a skilled artisan, either expressly or by implication that would have motivated one with no knowledge to combine or modify Lien. Accordingly, no proper motivation or suggestion is found in either Lien or Ueda et al. for one of ordinary skill in the art to combine the two teachings. Rather, Applicant respectfully submits that such combination is suggested only by the claimed invention and that combining is considered impermissible hindsight. Accordingly, Applicant respectfully requests withdrawal of the rejection based on the combination of Lien with Ueda et al.

On page 5 of the Office Action, the Examiner states, "*Lien does not explicitly show a passivation layer or the color filter layer being on the light-shielding layer, but these are conventional in the art and would be obvious to one [sic] of ordinary skill in order to avail themselves of well-established production methods*" and on page 6 of the Office Action, the Examiner states, "*Claims 7, 8, 17, 19, 20, 22, 24-26, and 32-34 disclose well-known details of LCDs which would be obvious to one [sic] of ordinary skill in the art, motivated by the*

*desire to avail themselves of convention features."* The Examiner appears to take official notice by stating that a passivation layer on the gate insulating film including the first substrate, a color filter layer on the light-shielding layer, and the combination of elements in claims 7, 8, 17, 19, 20, 22, 24-26, and 32-34 are well-known, but fails to cite a reference in support of his position. Applicant respectfully traverses the assertion that the combination of elements recited in claims 1-3, 7-11, 17, and 19-36 are well-known, and request the Examiner to provide evidence in the next Office communication.

Further, Applicant directs the Examiner to the MPEP Section 2144.03 and again traverses the assertion that the features recited in claims 7, 8, 17, 19, 20, 22, 24-26, and 32-34 are "well-known" and again requests the Examiner to cite a reference in support of his assertion. Additionally, Applicant respectfully submits that the well-known statement was seasonably traversed in the Amendment filed March 5, 2002, and the Examiner may not take the object of the well-known statement to be admitted prior art during examination.

The Examiner may take official notice of facts outside of the record which are capable of instant and unquestionable demonstration as being "well-known" in the art. *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). As set forth in M.P.E.P. § 2144.03, if an applicant traverses an assertion made by an Examiner while taking official notice, the Examiner should cite a reference in support of their assertion.

In view of these distinguishing features, Applicant submits that there is no teaching or suggestion in the cited references that would motivate one of ordinary skill in the art to arrive at the multi-domain liquid crystal display device of at least independent claims 1 and 35. Applicant submits that claims 1 and 35 and the claims that depend therefrom are allowable.

Application No.: 09/606,407  
Group Art Unit: 2871

Docket No.: 8733.264.00  
Page 11

In view of these remarks, Applicant respectfully submits that all of the pending claims of the application are in condition for immediate allowance.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. § 1.136, and any additional fees required under 37 C.F.R. § 1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

Application No.: 09/606,407  
Group Art Unit: 2871

Docket No.: 8733.264.00  
Page 12

If the Examiner deems that a telephone conference would further prosecution of this application, the Examiner is invited to call the undersigned attorney at (202) 496-7500. All correspondence should continue to be sent to the below-listed address.

Respectfully submitted,

MCKENNA LONG & ALDRIDGE LLP

Date: July 1, 2002

By *Teresa M. Arroyo*  
Teresa M. Arroyo  
Registration No: 50,015

1900 K Street, N.W.  
Washington, D.C. 20006  
Telephone No.: (202) 496-7500  
Facsimile No.: (202) 496-7756



30827

PATENT TRADEMARK OFFICE

**MARKED-UP VERSION OF AMENDED CLAIMS**

4. (Amended) [The multi-domain liquid crystal display device as claimed in claim 1,]

A multi-domain liquid crystal display device comprising:

first and second substrates opposing each other between a liquid crystal layer;

a plurality of gate bus lines and data lines on the first substrate lengthwise and crosswise, to define a pixel region;

a common auxiliary electrode on a layer equal to the gate lines to surround the pixel region;

a gate insulating film on the first substrate;

a passivation film on the gate insulating film including the first substrate;

a pixel electrode in the pixel region, [wherein] the pixel electrode [does] not overlapping the common auxiliary electrode[.];

a light-shielding layer on the second substrate;

a color filter layer on the light-shielding layer;

a common electrode on the color filter layer;

a plurality of electric field distortion dielectric structures patterned in different forms within neighboring pixels; and

an alignment film on at least one of the first and second substrates.

12. (Amended) [The multi-domain liquid crystal display device as claimed in claim 1,] A multi-domain liquid crystal display device comprising:

first and second substrates opposing each other between a liquid crystal layer;

a plurality of gate bus lines and data lines on the first substrate lengthwise and crosswise, to define a pixel region;

a common auxiliary electrode on a layer equal to the gate lines to surround the pixel region;

a gate insulating film on the first substrate;

a passivation film on the gate insulating film including the first substrate, [wherein]  
the pixel electrode [has] having an electric field induction window therein[.];

a pixel electrode in the pixel region;

a light-shielding layer on the second substrate;

a color filter layer on the light-shielding layer;

a common electrode on the color filter layer;

a plurality of electric field distortion dielectric structures patterned in different forms within neighboring pixels; and

an alignment film on at least one of the first and second substrates.

13. (Amended) [The multi-domain liquid crystal display device as claimed in claim 1,] A multi-domain liquid crystal display device comprising:

first and second substrates opposing each other between a liquid crystal layer;

a plurality of gate bus lines and data lines on the first substrate lengthwise and crosswise, to define a pixel region;

a common auxiliary electrode on a layer equal to the gate lines to surround the pixel region;

a gate insulating film on the first substrate;

a passivation film on the gate insulating film including the first substrate, [wherein]  
the passivation film [has] having an electric field induction window therein[.];

a pixel electrode in the pixel region;

a light-shielding layer on the second substrate;  
a color filter layer on the light-shielding layer;  
a common electrode on the color filter layer;  
a plurality of electric field distortion dielectric structures patterned in different forms  
within neighboring pixels; and  
an alignment film on at least one of the first and second substrates.

14. (Amended) [The multi-domain liquid crystal display device as claimed in claim 1,] A multi-domain liquid crystal display device comprising:

first and second substrates opposing each other between a liquid crystal layer;  
a plurality of gate bus lines and data lines on the first substrate lengthwise and  
crosswise, to define a pixel region;  
a common auxiliary electrode on a layer equal to the gate lines to surround the pixel  
region;  
a gate insulating film on the first substrate, [wherein] the gate insulating film [has]  
having an electric field induction window therein[.];  
a passivation film on the gate insulating film including the first substrate;  
a pixel electrode in the pixel region;  
a light-shielding layer on the second substrate;  
a color filter layer on the light-shielding layer;  
a common electrode on the color filter layer;  
a plurality of electric field distortion dielectric structures patterned in different forms  
within neighboring pixels; and

an alignment film on at least one of the first and second substrates.

15. (Amended) [The multi-domain liquid crystal display device as claimed in claim 1,] A multi-domain liquid crystal display device comprising:

first and second substrates opposing each other between a liquid crystal layer;

a plurality of gate bus lines and data lines on the first substrate lengthwise and crosswise, to define a pixel region;

a common auxiliary electrode on a layer equal to the gate lines to surround the pixel region;

a gate insulating film on the first substrate;

a passivation film on the gate insulating film including the first substrate;

a pixel electrode in the pixel region;

a light-shielding layer on the second substrate;

a color filter layer on the light-shielding layer;

a common electrode on the color filter layer, [wherein] the common electrode [has] having an electric field induction window therein[.];

a plurality of electric field distortion dielectric structures patterned in different forms within neighboring pixels; and

an alignment film on at least one of the first and second substrates.

16. (Amended) [The multi-domain liquid crystal display device as claimed in claim 1,] A multi-domain liquid crystal display device comprising:

first and second substrates opposing each other between a liquid crystal layer;

a plurality of gate bus lines and data lines on the first substrate lengthwise and crosswise, to define a pixel region;

a common auxiliary electrode on a layer equal to the gate lines to surround the pixel region;

a gate insulating film on the first substrate;

a passivation film on the gate insulating film including the first substrate;

a pixel electrode in the pixel region;

a light-shielding layer on the second substrate;

a color filter layer on the light-shielding layer, [wherein] the color filter layer [has] having an electric field induction window therein[.];

a common electrode on the color filter layer;

a plurality of electric field distortion dielectric structures patterned in different forms within neighboring pixels; and

an alignment film on at least one of the first and second substrates.

18. (Amended) [The multi-domain liquid crystal display device as claimed in claim 17,] A multi-domain liquid crystal display device comprising:

first and second substrates opposing each other between a liquid crystal layer;

a plurality of gate bus lines and data lines on the first substrate lengthwise and crosswise, to define a pixel region;

a common auxiliary electrode on a layer equal to the gate lines to surround the pixel region;

a gate insulating film on the first substrate;

a passivation film on the gate insulating film including the first substrate;  
a pixel electrode in the pixel region;  
a light-shielding layer on the second substrate;  
a color filter layer on the light-shielding layer;  
an over coat layer on the color filter layer, [wherein] the over coat layer [has] having  
an electric field induction window therein[.];  
a common electrode on the over coat layer;  
a plurality of electric field distortion dielectric structures patterned in different forms  
within neighboring pixels; and  
an alignment film on at least one of the first and second substrates.

37. [The multi-domain liquid crystal display device as claimed in claim 35,] A multi-domain liquid crystal display device comprising:

a data line to apply a data signal;  
a pixel electrode for driving a liquid crystal, [wherein] the pixel electrode [has] having  
an electric field induction window therein[.];  
a gate line crossed to the data line, to define a pixel region;  
a common auxiliary electrode formed to surround the pixel region; and  
a plurality of electric field distortion dielectric structures formed in different forms  
within neighboring pixels.